form of the terms, and the variable part of the arcs on which they depend, may be deduced from the theory of equilibrium, yet the constant epoch which occurs in each of these arcs, and which determines when the inequality vanishes, and reaches its maximum, will probably have to be determined, in all cases, by observation.

In conclusion, the author gives a statement of what appears to him to be the most important steps from which any great improvement to our knowledge on the subject of the tides may be hoped; and recommends the discussion of extensive collections of observations made at a variety of places, in a manner similar to what has been done by Mr. Dessiou with regard to those at London; and the comparison with one another of the empirical laws resulting from their separate investigation. Very valuable materials for this purpose, he expects, will hereafter be furnished by the observations now making, on a judicious system, at the St. Katharine's docks.

January 16, 1834.

JOHN WILLIAM LUBBOCK, Esq., M.A., V.P. and Treasurer, in the Chair.

A paper was read, entitled, "On a new property of the Arcs of the Equilateral Hyperbola." By Henry Fox Talbot, Esq., M.P., F.R.S.

By an analytical process, the author arrives at the following theorem, namely, if three abscissæ of an equilateral hyperbola be materially dependent by reason of two assumed equations, which are symmetrical with respect to these three abscissæ, the sum of the arcs subtended by them is equal to three quarters of the product of the same abscissæ, or only differs therefrom by a constant quantity. In order to satisfy himself of the correctness of this theorem, the author calculated various numerical examples, which entirely confirmed it. This simple result is essentially a relation between three arcs of the equilateral hyperbola, and is by no means reducible to a relation between two; and therefore is not reducible to the celebrated theorem of Fagnani, concerning the difference of two arcs of an ellipse or hyperbola, nor to any other known property of the curve.

The reading of Mr. Faraday's Sixth Series of Experimental Researches in Electricity was commenced.

January 23, 1834.

FRANCIS BAILY, Esq., Vice-President, in the Chair.

A paper was read, entitled, "Appendix to a Memoir, lately read to the Society, on the Quality and Quantity of the Gases disengaged from the Hot Spring of the King's Bath, in the City of Bath." By Charles G. B. Daubeny, M.D., F.R.S.

The author has lately examined two tepid springs, which, since the setting in of the wet weather, have broken out at the foot of St.

Vincent's rocks, Clifton, immediately below the Cliff, against which the suspension bridge over the Avon is designed to abut. The temperatures of the springs were 72° and 66° respectively; and the gas consisted of 92 parts of nitrogen, eight of oxygen, and three of carbonic acid. The author deduces from these facts arguments in confirmation of the views he has stated in the paper to which this is an appendix.

Mr. Faraday's Sixth Series of Experimental Researches in Electricity were resumed and concluded; and the reading of the Seventh Series commenced.

The Society then adjourned over the following Thursday, being the Day of the Martyrdom of King Charles the First, to meet again on the 6th of February.

February 6, 1834.

JOHN WILLIAM LUBBOCK, Esq., M.A., V.P. and Treasurer, in the Chair.

Captain Chesney, Roy. Art.; Thomas Copeland, Esq.; the Right Hon. Sir Edward Cust, K.C.B.; James Horne, Esq.; John Russell Reeves, Esq.; Lieut.-Col. William Henry Sykes, E.I.C.S.; and John Waterhouse, Esq., were elected Fellows of the Society.

The reading of Mr. Faraday's Seventh Series of Experimental Researches in Electricity was resumed in continuation.

February 13, 1833.

HIS ROYAL HIGHNESS THE DUKE OF SUSSEX, K.G., President, in the Chair.

The reading of Mr. Faraday's papers was resumed and concluded.

"Experimental Researches in Electricity.—Sixth and Seventh Series." By Michael Faraday, Esq., D.C.L., F.R.S., Fullerian Professor of Chemistry in the Royal Institution of Great Britain.

In the course of his experimental investigation of a general and important law of electro-chemical action, which required the accurate measurement of the gases evolved during the decomposition of water and other substances, the author was led to the detection of a curious effect, which had never been previously noticed, and of which the knowledge, had he before possessed it, would have prevented many of the errors and inconsistencies occurring in the conclusions he at first deduced from his earlier experiments. The phenomenon observed was the gradual recombination of elements which had been previously separated from each other by voltaic action. This happened when, after water had been decomposed by voltaic electricity, the mixed gases resulting from such decomposition were left in con-